WHAT IS CLAIMED IS:

1. A method of controlling movement of one or more stages of a precision assembly to process a substrate having a plurality of process regions, the method comprising:

dividing the substrate into blocks according to one or more preset criteria, each block of the substrate including one or more process regions;

generating learning data for one or more representative process regions for each block of the substrate; and

using the generated learning data of the one or more representative process regions of each block to control movement of the one or more stages to process the block of one or more process regions of the substrate.

2. The method of claim 1 wherein the blocks comprise at least one center block in a center region of the substrate and at least one edge block in an edge region of the substrate.

3. The method of claim 2 wherein each center block is larger in area than each edge block.

4. The method of claim 1 wherein the blocks comprise a block having a row of process regions along a stepping direction and transverse to a scanning direction for a step-and-scan processing of the substrate.

5. The method of claim 1 wherein the blocks comprise a block having a plurality of process regions selected from a row of process regions along a stepping direction and transverse to a scanning direction for a step-and-scan processing of the substrate.

6. The method of claim 1 wherein dividing the substrate into blocks comprises selecting process regions having substantially the same force effects and grouping the selected process regions into a block.

7. The method of claim 1 wherein dividing the substrate into blocks comprises selecting process regions having substantially the same stage position errors and grouping the selected process regions into a block.

8. The method of claim 1 wherein dividing the substrate into blocks comprises selecting process regions having substantially the same center of gravity calibration errors and grouping the selected process regions into a block.

9. The method of claim 1 wherein the blocks comprise a block having process regions which are spaced from each other by other process regions.

10. The method of claim 1 wherein generating learning data comprises performing an iterative learning control process on iterative learning control input data which is selected from the group consisting of a following error of the one or more stages and a force command of the one or more stages.

11. The method of claim 1 wherein generating learning data comprises generating a force feedforward to be applied to the one or more stages.

12. The method of claim 11 wherein generating learning data comprises performing a control process on learning control input data which is selected from the group consisting of a following error of the one or more stages and a force command of the one or more stages.

13. The method of claim 1 wherein generating learning data comprises generating a position feedforward control to fine-adjust a following error of the one or more stages which is processed by a feedback control to control movement of the one or more stages.

14. The method of claim 13 wherein generating learning data comprises performing a control process on learning control input data which comprises a following error of the one or more stages.

15. The method of claim 1 further comprising performing at least one of interpolating or extrapolating the learning data generated for the representative process regions to generate additional learning data for other process regions; and using the additional learning data to control movement of the one or more stages to process the other process regions of the substrate.

16. A system of controlling movement of one or more stages of a precision assembly to process a substrate having a plurality of process regions, the system comprising:

a position compensation module configured to generate learning data for one or more representative process regions for each block of a plurality of blocks of a substrate, each block including one or more process regions; and

a stage control module configured to use the generated learning data of the one or more representative process regions of each block to control movement of the one or more stages to process the block of one or more process regions of the substrate.

17. The system of claim 16 wherein the position compensation module is configured to perform an iterative learning control process on iterative learning control input data which is selected from the group consisting of a following error of the one or more stages and a force command of the one or more stages.

18. The system of claim 16 wherein the position compensation module is configured to generate a force feedforward to be applied to the one or more stages.

19. The system of claim 16 wherein the position compensation module is configured to generate a position feedforward control to fine-adjust a following error of the one or more stages which is processed by a feedback control to control movement of the one or more stages.

20. The system of claim 16 wherein the position compensation module is configured to perform at least one of interpolating or extrapolating the learning data generated for the representative process regions to generate additional learning data for other process regions; and use the additional learning data to control movement of the one or more stages to process the other process regions of the substrate.

21. A system for controlling movement of one or more stages of a precision assembly to process a substrate having a plurality of process regions, the system having one or more memories, the one or more memories comprising:

code for generating learning data for one or more representative process regions for each block of a plurality of blocks of a substrate, each block including one or more process regions; and

code for using the generated learning data of the one or more representative process regions of each block to control movement of the one or more stages to process the block of one or more process regions of the substrate.

22. The system of claim 21 wherein the code for generating learning data comprises code for performing an iterative learning control process on iterative learning control input data which is selected from the group consisting of a following error of the one or more stages and a force command of the one or more stages.

23. The system of claim 21 wherein the code for generating learning data comprises code for generating a force feedforward to be applied to the one or more stages.

24. The system of claim 21 wherein the code for generating learning data comprises code for generating a position feedforward control to fine-adjust a following error of the one or more stages which is processed by a feedback control to control movement of the one or more stages.

25. The system of claim 21 wherein the code for generating learning data comprises code for performing at least one of interpolating or extrapolating the learning data generated for the representative process regions to generate additional learning data for other process regions; and using the additional learning data to control movement of the one or more stages to process the other process regions of the substrate.

26. A method of operating an exposure apparatus comprising:
reciting a substrate with a stage;
controlling movement of the stage utilizing the method of claim 1; and
exposing the substrate with radiant energy.

27. A method for making a micro-device including at least the photolithography process, wherein the photolithography process utilizes the method of operating an exposure apparatus of claim 26.

28. A method for making a wafer utilizing the method of operating an exposure apparatus of claim 26.

29. A stage device comprising:
a stage that retains an object; and

the system of claim 16;

wherein the system is configured to control the movement of the stage that retains the object.

30. An exposure apparatus comprising:

an illumination system that irradiates radiant energy; and

the stage device according to claim 29, the stage device carrying the object disposed on a path of the radiant energy.